

ART. III.—*Aculagnathidae*. *A New Family of Coleoptera*.

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(With Plate II.)

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Introduction.

The insect described in this article is a very anomalous beetle and might almost be thought to be excluded from the order as its mouthparts are not strictly formed for biting. A similar condition is found in the Clavergerinac, where the mouthparts are so atrophied that they are very indistinct and quite useless. In the present family there is a highly specialised mandible, placed somewhat transversely, with a long, thin process on its outer edge, which normally rests within the labrum. When the mandible is moved the end of this process protrudes beyond the labrum and is evidently used for piercing its prey. The labrum itself is curled over on its edges and forms an open sheath for the styliform processes of the mandibles, the sheath being partly closed by a thin, membranous extension of the labium below.

The tarsi are also distinctive. Two small basal joints with the third segment twice their combined length are also found in Lathridiidae, but without the appendiculate claws or the empodium of this new family.

ACULAGNATHIDAE, n. fam.

Antennae nine segmented. Eyes lateral. Labrum produced in front. Mandibles not formed for biting and having a long styliform process in front. Maxillary palpi with three segments. Labial palpi with two segments. Abdomen of five visible segments. Tarsi with three segments, the apical segment with two claws and a small empodium.

***Aculagnathus*, n.gen.**

Body elongate-ovate, apterous. Head convex, rounded in front, clypeal suture not traceable. Eyes small, acinose, subbasal, visible on both surfaces. Labrum produced into a cuneiform projection in front. Mandibles with a thick bulbous basal part having on its outer edge a long, thin, styliform process, normally resting within the labrum. Maxillary palpi of three segments: first segment cylindrical, rather short, lightly curved; second segment one and a half times as long as first, cylindrical; third segment a little longer than second, broadly securiform, suddenly constricted near base on inner side, with a small, pointed appendage on apex. Labial palpi of two segments: first segment rather

short, cylindrical, second segment of same size and shape as third segment of maxillary palpi. Antennae of nine segments: the first segment large, the intermediate segments small, the last two segments large, and with the seventh, forming a strong club. Prothorax transverse. Scutellum small. Elytra elongate, seriate punctate. Epipleurae fairly wide at base and gradually narrowing to near apex. Prosternum strongly raised or keeled down centre, this partly covering coxae. Mesosternum rather short, subtriangularly keeled in centre, this process projecting between intermediate coxae. Metasternum long, concave down centre, emarginate on apex, its episterna nearly covered by the elytra. Abdomen of five visible segments: the first segment as long as next two combined; second, third and fourth equal in length; fifth about as long as the first. The fifth segment has six small crenulations on either side of its centre and these fit into short grooves in the under surface of elytra. Anterior coxae rounded, fairly close; intermediate globular, well separated; posterior transverse, rather widely separated. Anterior and intermediate trochanters subglobular; posterior triangular. Legs of moderate length. Tarsi fairly long, three segmented: first segment longer than wide; second short, transverse; third about twice the length of the two basal ones combined, with two strong, appendiculate claws and a small empodium, the latter bearing two strong setae.

The mouthparts are very small and consequently difficult to deal with. The mandible has been described as seen in a KOH preparation in balsam, but as the parts overlap one another it is extremely difficult to be sure of the exact edge of each piece. In the photomicrograph the two labial palpi are seen pushed to one side, and on the opposite side the base of the mandible has moved forward, and the styliiform part has been displaced and is seen touching the tip of the maxillary palp.

In front of the base of each labial palp there is a minute projecting organ and from each of these, two or three exceedingly fine filamentous pieces extend to the apex of the labium.

ACULAGNATHUS MIRABILIS, n. sp.

Pale castaneous, antennae, palpi and tarsi paler. With sparse, short, pale pubescence; upper surface almost glabrous; antennal club with long, fine setae.

Head convex, with very fine punctures. Antennae with first segment large, inner edge convex, outer concave, apex truncate; second moderately stout; third thin, increasing to apex, the length of next three combined; fourth to sixth short, equal, subquadrate; seventh wider, strongly transverse and applied to eighth; eighth widest, transverse; ninth bluntly conical, a little narrower at base than eighth. Prothorax transverse, rounded on sides, where it is finely crenulated; with coarse, subreticulate punctures. Elytra with fourteen rows of seriate punctures on each elytron, the subsutural row composed of thirty-two punctures. Prosternal

and mesosternal keels subopaque. Whole under surface with large, close punctures; most of sternum and first abdominal segment with punctures deep and rough; sides of prosternum and rest of abdomen with punctures shallow and smooth. Length, 1.50 mm.

Hab. Victoria: Belgrave (C. Oke) in nests of *Amblyopone obscurus*.

Only a few specimens have been found, but as they have all been taken right in the nests, where they appeared to be on quite friendly terms with the ants, they must be considered genuine inquilines.

There are no clusters of hairs anywhere to suggest trichomes, except, perhaps, those on the antennal club, where there is fine pubescence and some unusually long setae.

Type in author's coll.

Explanation of Plate II.

Fig. 1.—*Aculagnathus mirabilis*, n. sp. Upper Surface.

Fig. 2.—Ditto. Lower Surface. Lettering: L1. labrum, L2. labium; SP. styliform process of mandible, LP. labial palp, MP. maxillary palp, A. appendage to palp.

Fig. 3.—Tibia and tarsus.

Fig. 4.—Apical segment of maxillary palp.

Fig. 5.—Abdomen, showing genitalia.

Fig. 6.—Photomicrograph of head.

3 4, 5, 6, from KOH preparations.